

AMENDMENTS TO THE CLAIMS

1.(currently amended) An optical device package structure comprising:

5 an optical device (6);

a lead frame having a mounting portion (5) on which the optical device (6) is mounted and a lead portion (3) electrically connected to the optical device (6), ~~the mounting portion (5) having an aperture (5a) through which light incident on or emitted from the optical device (6) passes;~~

10 a wire (9) placed on a side of the lead frame on which side the optical device (6) is mounted and electrically connecting the optical device (6) with the lead portion (3);

a first resin (8) placed on a side opposite from the side of the lead frame on which the optical device (6) is mounted, the first resin being transmissive to the light and through which light incident on or emitted from the optical device passes; and

15 a second resin (2) at least part of which is placed on the side of the lead frame on which the optical device (6) is mounted, the second resin sealing the optical device (6) and the wire (9) and having a coefficient of linear expansion lower than that of the first resin; and

20 ~~a crack prevention structure (8, 21, 22, 31, 32, 81) preventing the first resin from cracking.~~

25 2. (currently amended) The optical device package structure as claimed in claim 1, further comprising a crack prevention structure preventing the first resin from cracking, wherein

the crack prevention structure comprises:

13 a bent portion-(31) provided at the lead portion-(3) of the lead
frame and bent toward the side on which the optical device-(6) is mounted;

14 a portion-(21) of the second resin located on the side opposite
5 from the side on which the optical device-(6) is mounted with respect to the bent
portion-(31); and

15 an end portion-(81) of the first resin put in contact with the portion
of the second resin.

10 3. (currently amended) The optical device package structure as claimed in
claim 1, further comprising a crack prevention structure preventing the first resin
from cracking, wherein

16 the crack prevention structure comprises:

17 a recess portion-(32) provided at the lead portion-(3) of the lead
frame and having a concavity on the side opposite from the side on which the
15 optical device-(6) is mounted;

18 a portion-(22) of the second resin located inside the recess portion
(32); and

19 an end portion-(81) of the first resin put in contact with the portion
(22) of the second resin.

20 4. (currently amended) The optical device package structure as claimed in
claim 1, further comprising a crack prevention structure preventing the first resin
from cracking, wherein

25 the crack prevention structure comprises:

a bent portion-(31) provided at the lead portion-(3) of the lead frame and bent toward the side on which the optical device-(6) is mounted; and
an end portion-(81) of the first resin having an end surface-(83)
that is aligned with an edge of the bent portion.

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5. (currently amended) The optical device package structure as claimed in
claim 4, wherein

the end surface-(83) of the end portion of the first resin is roughly
flush with a surface of the bent portion-(31) located on the side opposite from
10 the side on which the optical device is mounted.

6. (currently amended) The optical device package structure as claimed in
claim 1, wherein

the second resin-(2) is formed by transfer molding.

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7. (currently amended) The optical device package structure as claimed in
claim 1, wherein

the second resin-(2) contains no mold release agent.

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8. (currently amended) The optical device package structure as claimed in
claim 1, wherein

the first resin-(8) contains filler that reduces the coefficient of linear
expansion of the first resin.

9. (currently amended) The optical device package structure as claimed in claim 1, further comprising a crack prevention structure preventing the first resin from cracking, wherein

the crack prevention structure comprises the first resin-(8),

5 the first resin-(8) has a lens portion-(8a) that collects light incident on or emitted from the optical device and a base portion-(8b) that is continuous to the lens portion-(8a), and

the base portion-(8b) has a thickness of not greater than 0.5 mm.

10 10. (currently amended) The optical device package structure as claimed in claim 1, further comprising a crack prevention structure preventing the first resin from cracking, wherein

the crack prevention structure comprises the first resin-(8), and

15 the first resin-(8) has a lens portion-(8a) that collects light incident on or emitted from the optical device-(6) and a base portion-(8b) continuous to the lens portion-(8a) and has an area smaller than an area of the mounting portion-(5) of the lead frame when viewed from a direction of emission or incidence of the light.

20 11. (currently amended) The optical device package structure as claimed in claim 10, wherein

the crack prevention structure comprises the first resin-(8),

25 the first resin-(8) has a lens portion-(8a) that collects light incident on or emitted from the optical device-(6) and a base portion-(8b) continuous to the lens portion-(8a) and has an area smaller than an area of the mounting

~~portion (5) of the lead frame when viewed from a direction of emission or incidence of the light, and~~

the base portion-(8b) has a thickness smaller than a thickness of the lens portion-(8a).

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12. (currently amended) The optical device package structure as claimed in claim 10-~~or 11~~, wherein

the second resin-(2) has a part placed on the side opposite from the side of the lead frame on which the optical device-(6) is mounted, and the 10 part-(2a) of the second resin is placed at least in a part of a portion other than the portion of the lead frame where the first resin-(8) is placed.

13. (currently amended) The optical device package structure as claimed in claim 1, further comprising a crack prevention structure preventing the first resin 15 from cracking, wherein

the crack prevention structure comprises the first resin-(8), and the first resin-(8) has a lens portion-(8a) that collects light incident on or emitted from the optical device-(6) and a base portion-(8b) continuous to the lens portion-(8a) and is bonded to at least the lead frame with an adhesive 20 material-(10).

14. (currently amended) The optical device package structure as claimed in claim 13, wherein

the adhesive material-(10) contains a resin that has a glass 25 transition point lower than a lowest storage temperature.

15. (currently amended) The optical device package structure as claimed in
claim 13, wherein

the adhesive material-(10) contains a resin that has a curing point
of not lower than a lowest storage temperature and not higher than a highest
5 storage temperature.

16. (currently amended) The optical device package structure as claimed in
claim 1, further comprising a crack prevention structure preventing the first resin
from cracking, wherein

10 the crack prevention structure comprises the first resin-(8), and
the first resin-(8) has a plurality of lens portions-(8a) that collect
light incident on or emitted from the optical device-(6) and a plurality of base
portions-(8b) continuous to the respective lens portions-(8a), and the plurality of
combined lens portions-(8a) and base portions-(8b) are mutually separated.

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17. (new) The optical device package structure as claimed in claim 1,
wherein

the first resin is disposed on a side opposite from the side of the
lead frame on which the optical device is mounted, and

20 the mounting portion of the lead frame has an aperture through
which the light incident on or emitted from the optical device passes.